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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------------------|------------------------|
| 10/724,514 | 11/26/2003 | Sim Dong-Hi | 2060-3-92 | 1835 |
| 35884 7590 07/30/2007 LEE, HONG, DEGERMAN, KANG & SCHMADEKA 660 S. FIGUEROA STREET Suite 2300 LOS ANGELES, CA 90017 | | | EXAMINER GHULAMALI QUTBUDDIN | |
| | | | ART UNIT 2611 | PAPER NUMBER |
| | | | MAIL DATE 07/30/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/724,514

Applicant(s)

DONG-HI ET AL.

Examiner

Qutub Ghulamali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4, 7, 12 and 15-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 4, 7, 12 and 15-19 is/are allowed.
- 6) ☒ Claim(s) 20, 22-27, 29, 30, 32 and 34-37 is/are rejected.
- 7) ☒ Claim(s) 21, 28, 31, 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 May 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is responsive to the Remarks/Amendment filed 05/08/2007.
2. In response to corrected drawing, Fig. 1, filed 05/08/2007, the drawing objection is hereby withdrawn.
3. Applicant's amendment to claims 1 and 7 is acknowledged and the 35 U.S.C. 112, second paragraph rejection is hereby withdrawn.

Response to Remarks/Amendment

4. Applicant's remarks/amendment, see pages 10-11, filed 05/08/2007, with respect to the rejection(s) of claim(s) 1-14 under 35 U.S.C 103(a), have been fully considered and after a further search and examination in light of the amended claims, claims 1, 4, 7, 12, 15-19, are now indicated allowable. The rejection of the newly added claims 20, 22-27, 29-30, 32, 34-37 follows.

Specification

5. The disclosure is objected to because of the following informalities: The specification page 1, list one of the inventors as "Sim Dong Hee". However, the Oath or Declaration filed 11/26/2003 show the name as "Sim Dong-Hi".

Appropriate correction is required.

Claim Objections

6. Claim 22 is objected to because of the following informalities:

Claim 22, line 5, recites "each of a the plurality...". Examiner suggest the claim in the alternate recite "each of a plurality...".

Claims 22 and 32, last line, "check of..." be replaced with "check via..."

Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 20, are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al (US Pub. 2006/0209765) in view of Kim et al (US Pub. 2002/0004924).

Regarding claim 20, Li discloses a signal processing apparatus, comprising:
a signal reception unit for receiving at least one cyclical redundancy check (CRC) attached data block via at least one of a plurality of antennas (a cyclic extension is added by subsystem 26 prior to transmission by an antenna and the same is received by a receive portion or unit 32) (page 1, section 0006, 0012);
a channel estimation unit (a channel parameter estimator CPE) for checking the CRC attached data block page 1, section 0007, 0012; page 2, section 0025, 0026). Li; does not explicitly disclose a feedback signal transmission unit transmitting one of a positive acknowledgement (ACK) and a negative acknowledgement (NACK) based on the CRC check of each of the antennas. However, Kim discloses a feedback signal reception

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unit receiving status information of at least one channel according to the CRC check results) in a plurality of antennas (as disclosed in page 1, section 0008, 0009, 0011; page 2, section 0020, a feedback of reception signal is inherently implied and is implicitly and explicitly shown with reference to fig. 1A as a reverse operation of ACK/NAK from receiver to transmitter). It would have been obvious to one skilled in the art at the time of the invention to utilize a feedback signal transmission unit transmitting the channel status information as taught by Kim in the system of Li because it can provide source data transmission errors in original signal to improve the system performance.

9. Claims 22-27, 29-30, 32, 34-37, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al (US Pub. 2002/0004924) in view of Li et al (US Pub. 2006/0209765).

Regarding claim 22, 29 and 32, Kim discloses a data processing apparatus, comprising:
attaching cyclic redundancy check (CRC) to each of the at least two data blocks (a CRC attachment unit (fig. 4, element 431) attaching a CRC to each of the at least one or more of the second data blocks) (page 5, section 0065, 0067);
checking the CRC from each of the received CRC attached data block (a channel estimation unit (a channel parameter estimator CPE) for checking the CRC attached data block) (page 1, section 0007, 0012; page 2, section 0025, 0026).

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transmitting a positive acknowledgement (ACK) or a negative acknowledgement (NACK) based on the CRC check via each of the antennas (as disclosed in page 1, section 0008, 0009, 0011; page 2, section 0020, a feedback of reception signal is inherently implied and is implicitly and explicitly shown with reference to fig. 1A as a reverse operation of ACK/NAK from receiver to transmitter). Kim even though discloses transmitting each CRC attached data block to a receiver receiving at least one CRC attached data block, does not explicitly disclose a plurality of antennas transmitting to a single user. However, Li discloses (abstract) a plurality of transmit and receive antenna receive encoded data block signals based on CRC codes and/or signal quality (page 1, section 0012; page 4, section 0041,0042). It would have been obvious to a person skilled in the art at the time the invention was made to utilize a system such as a MIMO system with transmit and receive antennas as taught by Li in the system of Kim because it can facilitate the transmission and reception of data signals with higher quality and reduced interference error. Note the use of antennas is inherently implied in Kim even though it is not explicitly shown (page 2, section 0021).

As to claims 23, 34, Kim discloses CRC check is performed to acquire channel quality information (page 2, section 0018; page 5, section 0065).

Regarding claims 24, 35, Kim discloses channel quality information is based on quality of the channel through which the CRC-attached data block is transmitted (page 2, section 0018; page 1, section 0011).

Regarding claims 25, 36, Kim discloses the ACK is generated if the channel quality information is good (page 1, section 0011).

As per claims 26, 37, Kim discloses the NACK is generated if the channel quality information is bad (page 1, section 0011).

As to claims 27 and 30, HARQ II type inherently implies use of several data blocks (includes at least two data blocks, a code block segmentation part 432 performs block segmentation) transmitted from the transmitter to the receiver (see page 2, section 0021; page 5, section 0067).

Allowable Subject Matter

10. Claims 1, 4, 7, 12, 15-19 allowed.
11. Claims 21, 28, 31, 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and claim objection noted above.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014. The examiner can normally be reached on Monday-Friday, 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QG.

July 19, 2007.


MOHAMMED CHAFOUR
SUPERVISORY PATENT EXAMINER